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AUTHOR(S) — <i>J. Miedzinski &amp; S. A. Patel</i> PUBLICATION — <i>E. R. A. publication ref. V/T 140</i> TITLE — <i>Versatile feedback amplifiers for computers, laboratories and industrial use.</i> LOCATION OF PUBLICATION — <i>C.R.E. file No. 58 paper No. 1738</i> ABSTRACT — <i>A mathematical analysis of the design and performance of the E.R.A. simple versatile feedback amplifier is given. Working circuits, tables, curves, and variations of circuits are included. The basic circuit is a ring of three, with high impedance input and cathode follower output. One version has a gain of 50, and a 2 Mc/s bandwidth with 60 db/s of feedback.</i>																																																						
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Fig. 4. Example of a completed card.

and that perhaps one day the number of cards will exceed 10,000, then a drop out of 22 unwanted cards every time a one-subject search is conducted might be considered unacceptable. In this case the remedy is to limit the number of subjects per card to three, and make out two cards for abstracts embodying more than three subjects.

We decided to adopt random superimposed subject coding and, as soon as mutually exclusive sections become apparent, to confine certain categories of cards to labelled drawers so that there will never be an embarrassing number of drop outs.

It will be appreciated that the unwanted drop outs of Table 2 will only be correct for random distribution. If most of the abstracts deal with a relatively small number of subjects—and this tendency is likely to exist—then the number of unwanted cards may under certain conditions increase. This may well lend force to the need for sectionalization.

### Coding Other Concepts

#### 1. Author's name.

This is coded by the 7, 4, 2, 1 sequence code, in three separate fields, using one letter per field for the first three letters of the author's name, or the initial letter of the names of the first three authors in the event of multiple authorship. The code is A=1, B=2, etc., the alphabet being split into two halves. When "N-Z" is slotted N=1, O=2, etc.

#### 2. Year.

Two fields of a selector code are used for the decade and the year.

#### 3. Composition and common variables

Direct coding is used.

**Example of a complete card.**—A card is shown in

Fig. 4. The cards are supplied by the manufacturers with all holes punched and all information shown in the outside margins printed on every card. The abstractor writes or types in the abstract, marks the holes to be slotted, then sends the card to the system operator who slots the marked holes.

In the example shown three subjects have been coded. The groups are also written on the card by the abstractor; this is to facilitate the task of differentiating between wanted and unwanted cards when hand sorting.

**Acknowledgments.** The writer would like to thank members of the staff of Cawkell Research & Electronics Limited, in particular Mr. R. Reeves, and of the staff of Dawe Instruments Limited, for much valuable assistance in devising this system.

**Correction.**—Line 18, left-hand column of page 356 of the previous issue should start "slotting 20 into Fig. 1(b) . . ."

### Receiver/Recorder Connections

RECOMMENDATIONS drawn up jointly by the British Radio Equipment Manufacturers' Association and the Audio Manufacturers' Group include circuit connection points in the receiver or radiogram, sockets and plugs, wiring, arrangements for paralleling the channels of a stereo radiogram for use with a mono recorder, additional resistors to avoid harmful interaction between the two units, and input and output sensitivity requirements for the tape recorder. Free copies of the recommendations ("Connections between Tape Recorders and Radio Receivers") may be obtained from the secretary of B.R.E.M.A., 49 Russell Square, London, W.C.1.